

## Height-Weight-Ratio of Medallists of Commonwealth Games -2014

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### ABSTRACT

*The present study was conducted on men and women medalists of Commonwealth Games, '2014' numbering 62 of Boxing, Table Tennis and Weightlifting. This study was carried out to determine the Height-Weight-Ratio of these medalists. Height-weight-ratio is a measure of body composition; the higher the score, more will be the level of body fat. The supply of this information to the CWG medallists of Boxing, Table Tennis and Weightlifting will helps Indian sportspersons, of these sports categories, to monitor their body composition, so as to improve their performance.*

### KEYWORDS

*Height, Height, weight-ratio*

### INTRODUCTION

The Commonwealth Games (formerly the British Empire Games; 1930-1954) is an international multi-sport event involving

athletes from the Commonwealth nations.

The event was first held in 1930, with a motto of 'Humanity- Equality-Destiny' and

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it has been described as the 3rd largest multi-sport event in the world after Olympic Games and Asian Games.

Height can significantly influence success in sport depending on how the design of the sport is linked to factors that are height-based, due to physique and biology. Age-based sports competitions were innovated and put to practice in various parts of the world, to encourage and motivate young children to participate and excel in various physical activities.

The role of morphological characteristics in the performance of various sports events has undoubtedly been established by now; and biomechanical explanations of a particular type of physique, being more advantageous to the others in performance, have been put forth (Tanner, 1964; Carter, 1970; Singh, 1973; Sodhi, 1976; Ross et al, 1982).

## METHODOLOGY

The present study is based on 62 medallists (40 men and 22 women) of Commonwealth Games, 2014, of Boxing, Table Tennis and Weightlifting. The data of age, height and weight has been collected for this study from the available official website of Commonwealth Games Federation, [www.cgf.com](http://www.cgf.com), [www.glasgow.com](http://www.glasgow.com). Average age, stature, HWR (height-weight-ratio), has been calculated for each category, respectively.

The formula to calculate height-weight-ratio (HWR) is mentioned as below:

$$\text{HWR} = \text{Height (cm)} / \sqrt[3]{\text{Weight (kg)}}$$

## RESULTS & DISCUSSION

In Table 1, the average age, height and HWR are shown with event, sex and category wise. The average height is increasing steadily with the increase of weight category in Boxing and Weightlifting, regardless of sex. In Table Tennis, the average height is 1.77 m for men and 1.65 m for women, while the average weight is 72 kg and 54.3 kg for men and women, respectively. All athletes fall under the age range of 20.5-32.5 years.

In male Boxers HWR is highest in 56 kg category and lowest in 91 kg category while in women HWR is in the range of 41.3- 43.1. In Table Tennis, the average HWR is 42.7 and 43.6 for men and women, respectively.

In men, Weightlifters HWR is highest in 56kg and lowest in above 105 kg category; in women HWR is highest in 53 kg and lowest in above 75 kg category.

Fig 1-8, shows the bar diagrammatic representation of height, HWR for each event and separately for men and women. It is observed that average of HWR is low with the increase of category as shown in fig.4, fig.6 and fig.8. Further study including more number of elite athletes would provide clearer picture.

*Table-1: Average age, height and HWR of the CWG-2014 medallists of certain sport activity.*

Event	Sex	Age (yrs.)	Category	Height (m)	HWR
Boxing	Male	24.5	49 kg.	1.60	43.7
		23.0	52 kg.	1.63	43.6
		21.5	56 kg.	1.71	44.7
		21.0	60 kg.	1.73	43.9
		24.0	64 kg.	1.76	44.5
		21.5	69 kg.	1.76	42.6
		25.5	75 kg.	1.82	43.0
		23.3	81 kg.	1.89	43.9
		27.5	91 kg.	1.85	41.1
		28.0	91+	1.98	43.7
	Female	27.3	48-51 Kg.	1.60	43.1
		32.0	57-60 Kg.	1.66	42.4
		24.0	69-75 Kg.	1.73	41.3
Table Tennis	Male	28.0	72 kg.	1.77	42.7
	Female	23.0	54.3 kg.	1.65	43.6
Weight-lifting	Male	22.5	56 kg.	1.63	42.6
		27.0	62 kg.	1.65	41.7
		24.5	69 kg.	1.65	40.2
		24.0	77 kg.	1.73	40.7
		24.0	85 kg.	1.72	39.1
		26.0	94 kg.	1.88	41.5
		25.7	105 kg.	1.84	39.7
		32.5	105+	1.86	35.0
	Female	19.5	48 kg.	1.50	41.3
		23.0	53 kg.	1.60	42.7
		27.5	58 kg.	1.62	42.0
		20.5	63 kg.	1.54	38.7
		27.5	69 kg.	1.65	40.4
		26.5	75+	1.67	37.6



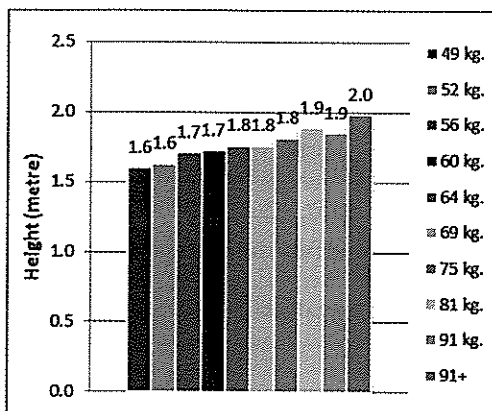


Fig-1: Bar-diagrammatic representation of height (m) of Male CWG-2014 medallists (Boxing)

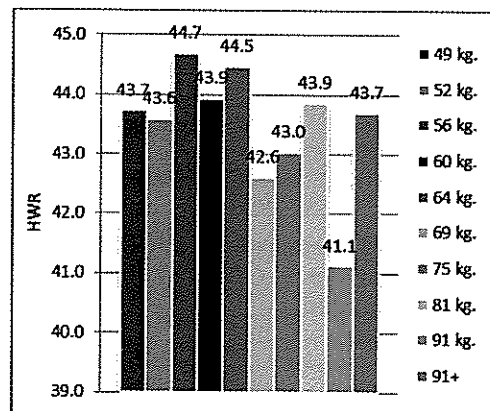


Fig-2: Bar-diagrammatic representation of height-weight ratio of Male CWG-2014 medallists (Boxing)

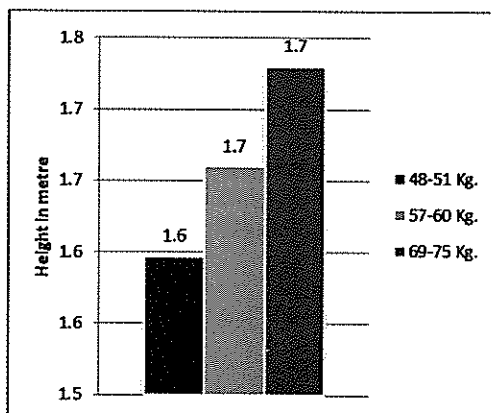


Fig-3: Bar-diagrammatic representation of height of Female CWG-2014 medallists (Boxing)

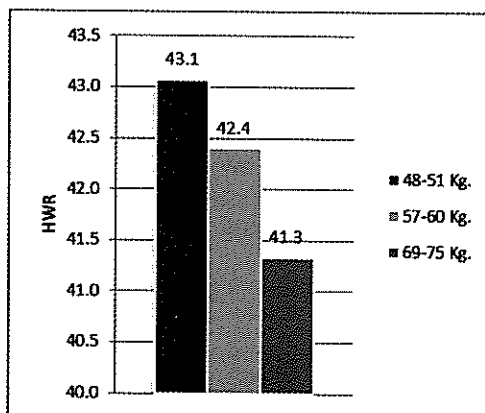


Fig-4: Bar-diagrammatic representation of height weight ratio of Female CWG-2014 medallists (Boxing)

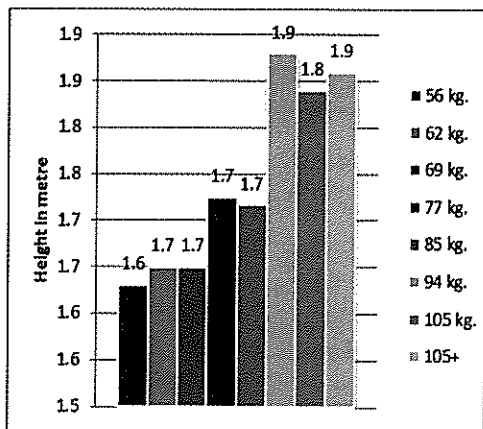


Fig-5: Bar-diagrammatic representation of height of male CWG-2014 medallists (Weightlifting)

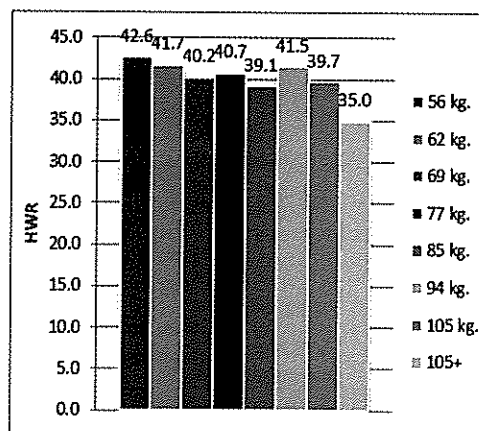


Fig-6: Bar-diagrammatic representation of height weight ratio of male CWG-2014 medallists (Weightlifting)

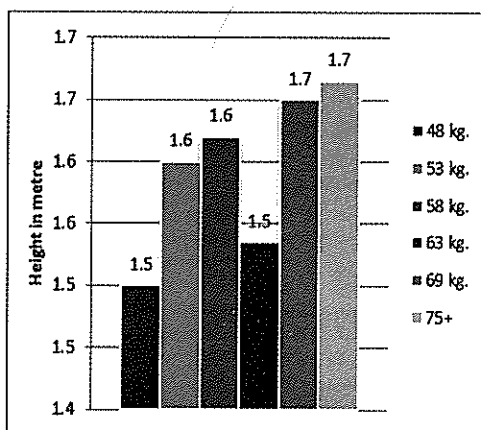


Fig-7: Bar-diagrammatic representation of height of female CWG-2014 medallists (Weightlifting)

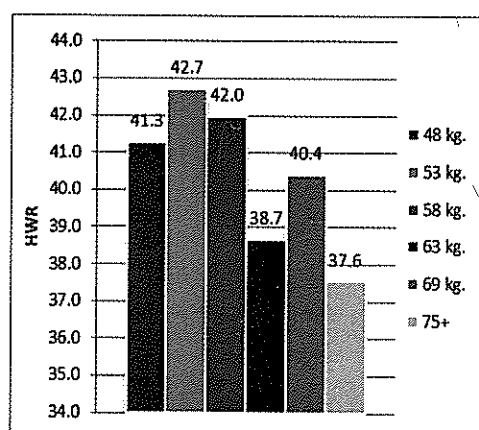


Fig-8: Bar-diagrammatic representation of height weight ratio of female CWG-2014 medallists (Weightlifting)

## CONCLUSION

1. Average age of boxers of all weight category fall at 23.9 years (men) and 27.7 years (women). The average age of table tennis fall at 28 years (men) and 23 years (women). And average age of all weightlifter fall at 25.7 years (men) and 24 years (women).
2. Average HWR of boxers of all weight category are within the range of 41.1-44.7 (men) and 41.3-43.1(women). The average HWR of table tennis is 42.7(men) and 43.6(women) .The average HWR of weightlifters are in the range of 35- 42.6 (men) and 37.6-42.7(women).
3. However, increase in weight category is more or less directly proportionate to age and height, but inversely proportionate to the HWR.

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